

Project Summary/Abstract
190 MW North Antelope Highlands Wind Project
Rosebud Sioux Tribe

Technical Contact:

Braden Houston
Sr. Wind Developer
Citizens Energy Corporation
88 Black Falcon Ave.
Boston, MA 02210
bhouston@citizensenergy.com
Office: 617-951-0479
Cell: 617-530-0029
Fax: 617-542-4487

Business Contact:

Ken Haukaas
Tribal Project Supervisor
11 Legion Avenue
Rosebud, SD 57570
ken_haukaas@yahoo.com
Office: 605-747-2381
Cell: 605-441-6490
Fax: 605-747-2905

The Rosebud Sioux Tribe (RST) is a Federally Recognized Sovereign Indian Nation, located in Todd County in South Central South Dakota with tribal trust lands scattered in a checkerboard fashion in 4 other counties surrounding it to the East and North, totaling over 900,000 acres. Since the late 1990s the tribe has been actively pursuing wind development on the Rosebud Reservation. In March of 2003, the Rosebud Sioux Tribe commissioned a single 750 kW NEG-Micon Vestas wind turbine which has come to be known as the Little Soldier (Akicita Cikala) turbine, in respect to the vision of Alex "Little Soldier" Lunderman and his contribution to this effort. This turbine was the result of a DOE grant awarded in late 1999, along with a matching USDA RUS Loan. Assistance with this project was given by Distributed Generation Systems Inc. (Disgen) of Lakewood, Colo. and the Intertribal Council on Utility Policy (ICOU), incorporated under the Rosebud Sioux Tribe. With the continued support of Disgen, in the fall of 2003, the RST applied for and received a \$441,000.00 DOE grant to develop a 30 MW wind farm, contracting Disgen Inc. as the developer to assist the tribe in the development of the Owl Feather War Bonnet Wind Farm. After 5 years, this wind farm's development is almost complete, with the exception of a signed Power Purchase Agreement and the resulting interconnection agreement. We believe this agreement will be signed shortly and the wind farm will be built by the end of 2009. We shall act as a passive landowner reaping a percentage of gross receipts based on Grant of Use and Lease Agreement agreed upon by action of the RST Tribal Council and the Bureau of Indian Affairs.

Realizing the potential of wind development to bring about tribal economic development, the tribe has continued to pursue wind development with the installation of 2 other Met towers in 2003 and 1 other in 2005 in different locations on the reservation. Furthermore, in the fall of 2007, the RST issued an RFP to develop a 100 MW wind farm on the highlands north of Antelope/Mission, South Dakota. Consequently, in the fall of 2008, the RST Council contracted a Memorandum of Understanding (MOU) with Citizens Wind, of Citizens Energy Corporation, to begin developing, in earnest, as much as 200 MW of wind power on reservation lands identified. Since this MOU was signed, Citizens has erected two more Met Towers on lands identified in the North Antelope highlands to correlate data with the existing RST Met Tower for the development of the 190 MW North Antelope wind farm.

Citizens has conducted a preliminary Systems Impact Study to understand approximately how much actual capacity is remaining on the WAPA 115 kV line that runs east and west through the reservation. The study found that only 190 MW of capacity remains on this line and Citizens have requested North Antelope 1 & 2 to be placed in queue on this line, with a \$10,000.00 application fee being placed with MISO, the Midwest Independent System Operator, on each of a 100 MW wind farm and a 90 MW wind farm. We shall include this study, in the study and assessment file attachment.

At the direction of RST, Citizens has initiated a preliminary environmental review to be conducted by an environmental contractor hired by Citizens. This Phase One study shall attempt to reveal any potential significant environmental issues within the area. We shall also bring forth in the Project Narrative an outline of baseline studies that will be conducted on this project to insure that we comply with all Tribal and Federal laws, including the National Environmental Policy Act and the National Historic Preservation Act. We shall cite the requirements of NEPA and comply accordingly. The project shall also follow any and all protocol requested from the RST Tribal Historic Properties Office in conducting any Cultural Studies and Reviews. These preliminary reviews will be inserted in the Environmental Analysis and Approvals File attachment.

We shall bring forth in the project narrative a 2.5 year projected development schedule with estimated costs and a short explanation of activities proposed during each activity.

The existing wind data indicates that the wind class is in the superior range at the standard hub height of 90 meters, with a capacity factor well above 40%. The proposed wind farm is in very close proximity to infrastructure with thousands of acres of tribal trust lands identified.

It is our assumption to move forward with this project no matter what this grant may offer, as we feel this project is a well deserved effort for our tribe to develop sustainable and self-sufficient projects such as this and to improve the local economy. Beyond the economic benefits to the tribe, we feel it is our inherent obligation as human beings to protect our earth, our mother, and to help her heal in any way we can, so that we can take care of our children and grandchildren.

We are requesting a \$1,500,000.00 grant to assist the Rosebud Sioux Tribe and Citizens Wind to conduct all the preconstruction activities to bring forth a 190 MW wind farm. The preconstruction activities are estimated to cost \$3,000,000.00 and to take a 2.5 year period.

**Application to the Department of Energy Renewable Energy and Energy Efficiency
Deployment in Indian Country – Contiguous 48 States**

**Applicant: The Rosebud Sioux Tribe
Project Location: Rosebud Indian Reservation, North Antelope Highlands
Funding Opportunity Number: DE-PS36-09GO99014**

Topic Area: Pre-Construction Activities for Renewable Energy Projects

**Project Name: Wind Energy Development on the Rosebud Sioux Reservation:
North Antelope Highlands Wind Project**

Technical and Business Contacts:

**Business Contact: Ken Haukaas, Tribal Project Supervisor
11 Legion Avenue
Rosebud, SD 57570
ken_haukaas@yahoo.com
Office: 605-747-2381
Cell: 605-441-6490
Fax: 605-747-2905**

**Technical Contact: Braden Houston, Sr. Wind Developer
Citizens Energy Corporation
88 Black Falcon Ave.
Boston, MA 02210
bhouston@citizensenergy.com
Office: 617-951-0479
Cell: 617-530-0029
Fax: 617-542-4487**

Table of Contents

| | |
|--------------------------------------------------------------------------|----|
| 1. Goals and Objectives of Project | 3 |
| 1.1. Overview | 3 |
| 1.1. Project Management Structure | 4 |
| 1.1.1. Tribal Government Structure | 5 |
| 1.2. Integration with Cultural, Social, and Long-term Energy Goals | 5 |
| 1.3. Economic, Environmental, Cultural, and Social Benefits | 5 |
| 1.4. Potential Future Expansion of the Project | 6 |
| 1.5. Sustaining the Project Post-DOE Award | 6 |
| 1.6. Justification for DOE Funding | 7 |
| 2. Project Description and Implementation Plan | 7 |
| 2.1. Project Description | 7 |
| 2.2. Reduction in Fossil Fuels | 7 |
| 2.3. Project Feasibility | 7 |
| 2.4. Wind Resource | 8 |
| 2.5. Technology Selection | 8 |
| 2.6. Power Market Assessment | 8 |
| 2.7. Available Transmission and Interconnection | 8 |
| 2.8. Economic Assessment | 9 |
| 2.9. Financing Plan | 10 |
| 2.10. Barriers or Obstacles | 11 |
| 2.11. Operation/Maintenance and Training Plans | 11 |
| 2.12. Community Support | 11 |
| 2.13. Business and Organization Plan | 11 |
| 3. Environmental Considerations | 11 |
| 3.1. Environmental Benefits and Impacts | 11 |
| 3.2. Environmental Analyses Conducted | 12 |
| 3.3. Permitting/Approval Needs | 13 |
| 3.4. Permitting/Approval Plan | 14 |
| 4. Role, Responsibilities, Resources and Capabilities | 15 |
| 4.1. Management Concept; roles, business agreements | 15 |
| 4.2. Other Project Representatives | 15 |
| 4.3. Management Approach | 15 |
| 4.4. Capabilities | 16 |
| 4.5. Cost Sharing | 16 |
| 4.6. Description of Land | 16 |
| 4.7. Business Agreements | 16 |
| 4.8. Project Co-Financing | 16 |
| 5.0 Project Activities and Timeline | 17 |
| 5.1. Overview of Project Goals | 17 |
| 5.2. Summary of Approach for Implementation | 17 |
| 5.3. Description of Tasks | 17 |
| 5.4. Schedule of milestones | 19 |

1. Goals and Objectives of Project

1.1. Overview

The Rosebud Sioux Tribe (RST) is a Federally Recognized Sovereign Indian Nation, located in Todd County in South Central South Dakota with tribal trust lands scattered in a checkerboard fashion in 4 other counties surrounding it to the East and North, totaling over 900,000 acres. Rosebud reservation is the sixth largest in the Nation. The 26,000 present day members of the Rosebud Sioux Tribe are the descendants of the Sicangu Oyate (Brule or Burnt Thigh Nation), many of which reside on the reservation. The Sicangu are a part of the Tetonwan Lakota Oyate (Dwellers of the Plains), more commonly known to history as the Great Sioux Nation.

The expansive, rolling prairies, the shallow, winding creeks and rivers, and the ever-present winds are all integral parts of the continuing history, culture and remaining economic base upon which the Lakota people who call Rosebud home depend.

Since the late 1990s the Tribe has been actively pursuing wind development on the Rosebud Reservation. In March of 2003, the Rosebud Sioux Tribe commissioned a single 750 kW NEG-Micon Vestas wind turbine, known as the Little Soldier (Akicita Cikala) turbine, in respect to the vision of Alex "Little Soldier" Lunderman and his contribution to this effort. This turbine was the result of a DOE grant awarded in the late 1990s, along with a matching USDA RUS Loan. In the fall of 2003, the RST applied for and received funding to develop a 30 MW wind farm, the Owl Feather War Bonnet Wind Farm. Project development is nearly complete, with the exception of a signed Power Purchase Agreement and the resulting interconnection agreement. The RST will act as a passive landowner, earning a percentage of gross receipts based on RST Tribal Council approved Use and Lease Agreements.

Realizing the potential that wind development can contribute to tribal economic development, the RST continued to pursue wind development with the installation of two other met towers in 2003 and another in 2005. In the fall of 2007, the RST issued an RFP to develop a wind farm on the highlands north of Antelope/Mission, SD. After reviewing three primary proposals, in December 2008, the RST selected Citizens Wind, a subsidiary of Citizens Energy Corporation of Boston, Massachusetts to continue wind development efforts for the Rosebud Sioux Tribe. The intent of the agreement is to develop a Joint Venture relationship for various wind projects as sites are identified, consistent with available transmission capacity. Since the MOU was signed, Citizens has erected two more Met Towers on lands identified in the North Antelope highlands to correlate data with the existing RST Met Tower. The existing wind data indicates that the wind class is in the superior range at the standard hub height of 90 meters. The proposed wind farm is in very close proximity to infrastructure with hundreds of acres of tribal lands identified.

The RST and Citizens Wind intend to complete required pre-construction activities necessary to secure funding for the proposed 190 MW North Antelope Highlands wind farm, including identification of power purchasers, National Environmental Policy Act (NEPA) permitting requirements, transmission and interconnection studies and subsequent interconnection agreements required to deliver energy to a specific set of potential purchasers.

This project will result in delivery of all required environmental and cultural studies, permits and contracts sufficient to secure project financing.

Goals of this effort to develop the 190 MW North Antelope Highlands Wind Project are to:

1. Continue to collect and analyze wind data
2. Complete required interconnection studies and engineering work for project interconnection and transmission service;
3. Finalize lease and project agreements in and between the Project Parties;
4. Complete final engineering design;
5. Permitting and approvals work, including, avian and bat studies, wildlife surveys and reports, archeological, visual simulations, noise, FAA and any other NEPA related permits and approvals due to tribal and/or allottee lease and/or WAPA interconnection activities
6. Build and maintain community support for wind development
7. Negotiate and secure a Power Purchase Agreement
8. Secure financing
9. Secure turbines
10. Negotiate and select Balance of Plant electrical and civil construction firms and contractors

The objectives of the project are to develop a self-sustainable business on the reservation to foster jobs primarily and to create maximum economic development benefits to the RST and its members without the Tribe assuming any economic risk. Building internal capacity is also an important ingredient in this project, as it has provided a greater understanding of the potential of wind resource here on the reservation. The learning curve of all involved, including the education of administrative personnel along with elected officials has brought the Tribe a more enlightened view of the economic potential of wind for its people.

1.1. Project Management Structure

The project will be managed by Ken Haukaas, Wind Coordinator for the Rosebud Sioux Tribe and RST Natural Resources Department. Citizens Wind will be performing much of the technical work and co-leading management of the project.

In 2008, all wind development was redirected from the RST Council at large to the Rosebud Economic Development Corporation (REDCO), the economic arm of the RST. The REDCO board of directors is comprised of business owners, Rosebud Sioux tribal council members, and the Rosebud Sioux tribal president. REDCO'S project participant will be Christian "Tuffy" Morrison, with advisory from REDCO's Board representatives, specifically, Rodney Bordeaux, RST President; Wayne Boyd, Tribal treasurer; Jim Dwiki, Chief Financial Office; and Eric Antoine, In-house Tribal Attorney.

Other Tribal management participants will include (resumes are attached):

- RST Tribal Historic Preservation Office Technical Staff, including -- Russell Eagle Bear, Tribal Historic Preservation Officer; Ben Rhodd, Archeologist and Kathryn A. Arcoren, Administrative Assistant
- Shicangu Oyate Land Office Technical Staff, including -- Fern Bordeaux-Boltz, Director; Jennifer Galindo, GIS Specialist; Emily Boyd, GIS Specialist and Ms. Alexis, GIS Specialist

1.1.1. Tribal Government Structure

The Rosebud Sioux Tribe is a Federally Recognized Sovereign Indian Tribe organized under an amended Constitution, Bylaws and Corporate Charter approved pursuant to the Indian

Reorganization Act of 1934, 25 U.S.C. Subsection 461, *et seq.* The Tribal Council is responsible for establishing policy and conditions that foster the socio-economic well being of its members. Elected Tribal leaders represent the 20 communities within the Reservation which include: Ideal, Winner, Butte Creek, Okreek, Antelope, Ring Thunder, Soldier Creek, St. Francis (Owl Bonnet), Spring Creek, Two Strike, Grass Mountain, Upper Cut Meat, Swift Bear, Parmelee,, Rosebud, Black Pipe, He Dog, Corn Creek, Horse Creek, Bull Creek, & Milks Swift Bear, Parmelee, Rosebud, Black Pipe, He Dog, Corn Creek, Horse Creek, Bull Creek, & Milks Camp.

The Tribal Council consists of a President, a Vice-President, a Secretary, a Treasurer and a Sergeant-at-Arms and twenty (20) Council Members elected by Tribal members.

1.2. Integration with Cultural, Social, and Long-term Energy Goals

Development of renewable energy projects such as the proposed North Antelope Highlands wind project reflect the RST's basic native view of the world and holistic approach to use those gifts that come from the natural world to build the Tribe's economy in a sustainable manner. Before the advent of oil upon the world economy, native peoples upon this continent depended upon all the renewable resources that were given to them to sustain their economy. Their religious view of the world reflected this gift view of life, in as much they would share food with their families and the comfort of shelter with relatives and others. The understanding of renewal is the understanding of the Sacred Hoop of life. Accordingly, the RST feels very comfortable in building its economy with these types of projects. Although the financial benefits are important to the Tribe, these projects reflect more the Tribe's beliefs about doing the right things, for the health of the earth and for the health and welfare of future generations.

1.3. Economic, Environmental, Cultural, and Social Benefits

The most recent tribal enrollment figure for Tribal members residing on the Rosebud Sioux Reservation is 21,500, with more than 40% of these members under the age of 30. Unemployment fluctuates between 45% in mid-summer to as much as 85% in mid winter. As of the last U. S. Census, Todd County/ Rosebud Sioux Indian Reservation was fifth (5) from the bottom in the United States with per capita income of less than \$8,000 per year. The Tribe and its tribal members desperately need to develop long-term projects and infrastructure with which to provide not only revenues but training opportunities, employment, and community investment into economic endeavors which are consistent with its worldview. With the Rosebud reservation being as large as it is, wind development on a larger and more economic scale is on track with the long-term vision the Rosebud leadership and membership has for the future.

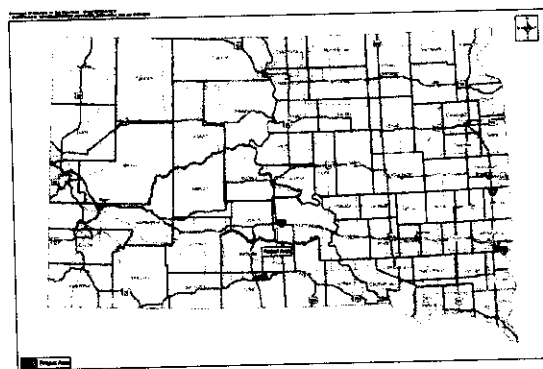
An Overall Economic Development Plan (OEDP) was prepared for the Tribe in October 1998. The OEDP strategic vision was to shift the present economic system from a predominantly grant- and aid- based economy to a self sustainable business sector economy. The development of commercial wind energy facilities is consistent with the objectives of the OEDP. Beyond the development of commercial wind farms, the RST is looking at developing smaller type wind turbines such as the Rosebud Casino Turbine for communities and schools, along with residential turbines to assist community members faced increasing electric bills. The RST sees a high potential in building a distributed energy system on the reservation to foster jobs and to build a self-sustainable economy in the future for its people. Revenues from this project are assumed to ultimately assist tribal members mitigate rising energy costs, in either direct payments to meet household energy requirements, or through installation of renewable energy devices for residential use or for the community overall.

Environmentally, the benefits of this proposed project are compelling. The US fuel mix produces an average of 1.52 pounds of carbon dioxide, 0.0080 pounds of sulfur dioxide, and 0.0049 pounds of nitrogen oxides per kWh of generated electricity, while wind energy produces 0 pounds of each of these pollutants per kWh. The RST wind project would produce 680,141,000 kWh of electricity per year, offsetting 1,033,814,320 pounds of carbon dioxide, 5,441,128 pounds of sulfur dioxide, and 3,332,690.9 pounds of nitrogen oxides that would otherwise have been generated.

1.4. Potential Future Expansion of the Project

In 2008, the Rosebud Sioux issued a request for proposals related to the development of commercial scale wind on the Rosebud Reservation. Citizens Wind, the for-profit wind energy development division of non-profit Citizens Energy Corporation, submitted a proposal to work with RST, was selected and their partnership formalized in late 2008. In addition to development of the North Antelope Highlands wind project, Citizens and the RST ("the Partners") will also focus on identifying other potential wind development opportunities, excepting the Owl Feather War Bonnet project.

At the present time, the RST has identified thousands of acres, and the Sicangu Oyate Land Office Board of Commissioners has moved to set aside lands in these areas for wind development contemplated by the Partners. The RST believes that wind development will provide a very substantial contribution to the local economy in a variety of ways, with green job training and development, along with revenue streams from these efforts. With that in mind, the RST is anticipating that lands with a high potential for wind projects may also require development of RST transmission lines to tie into the various transmission proposals being considered in the region at present. With its large land base, the RST anticipates the potential to develop at least 1000 MW of wind power projects within the next ten years.



1.5. Sustaining the Project Post-DOE Award

Citizens and the RST will ensure that power purchase agreements for the North Antelope Highlands wind project will be sufficient to meet operations and maintenance requirements, provide sufficient financial returns to investors, repay loans or bonding mechanisms used, plus pay royalty payments to the Tribe. With measured wind data, and anticipated capacity factors, Citizens and the RST believe that the wind resource in the area is sufficient for a self-sustainable economic wind project.

The RST intends to move forward with this project even if DOE does not award funding, as members feel the project is necessary for the Tribe to develop sustainably and self-sufficiently and to improve the local economy. Beyond the economic benefits to the Tribe, members feel it is their inherent obligation as human beings to protect the earth, our mother, and to help her heal in any way they can, so that they can take care of their children and grandchildren.

1.6. Justification for DOE Funding

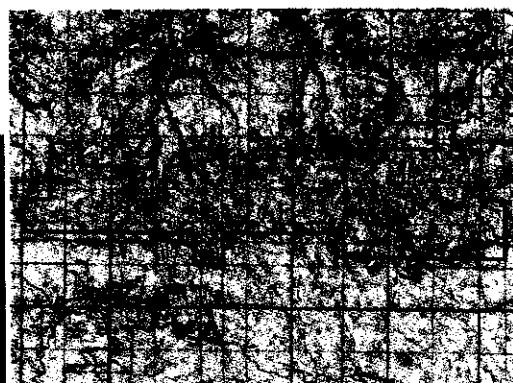
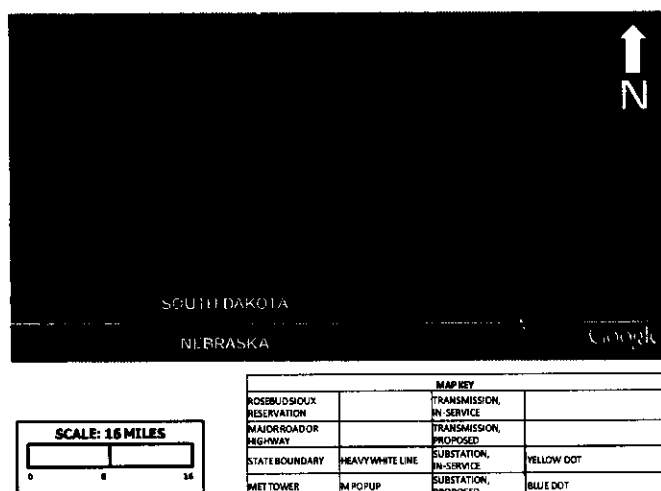
Energy project development contributions, or project equity investments, are a significant challenge, particularly for Tribes heavily dependent on grant funding. Funding of this magnitude

cannot be pulled from existing social programs that support RST's large on-reservation population, particularly since there is no guarantee of return. Any DOE grant funding received will represent an equity investment for the RST, allowing the community to benefit more significantly for generations.

2. Project Description and Implementation Plan

2.1. Project Description

The area of interest is located on the Rosebud Indian Reservation in Todd County near the town of Mission in south-central South Dakota. The topography consists of many rolling hills with several ravines within. The vegetation consists of native prairie short-grass with scattered trees and shrubs in the ravines. There are also small plots of farmland



along the southern border of the project area.

A 50m meteorological tower was installed within the site and is owned by the Rosebud Sioux Tribe.

The site is located approximately 2.5 miles north of Mission, SD, and roughly 15 miles north of St Francis, the site of the War Wind data from the Owl Feather War Bonnet wind project site, as indicated in these maps which show transmission facilities, terrain, topographical features, placement of the met tower and project area.

2.2. Reduction in Fossil Fuels

The North Antelope Highlands wind project would offset the use of fossil fuel electrical generation, with significant environmental benefits described above in Section 1.3.

2.3. Project Feasibility

As described below in Section 2.8, initial indications are that the 190 MW North Antelope Highlands wind project will be feasible.

2.4. Wind Resource

A preliminary wind resource analysis for the site was run early in 2009 which focused on met tower site identified as Mission Site 1451 has a base elevation of 2760 m above mean sea-level

and measurement heights at 30 m, 41 m and 50 m above ground level (AGL). Approximately 19 months of data were collected, but for purposes of the analysis, a one year block of data was used for this analysis to avoid any seasonal bias and that selected reporting period was from November 2003 – November 2005. The results and summary analysis is as follows: Mean wind speed: 8.3 meters per second at 50 meters. A wind production analysis was completed for Mission Site 1451, key results included: Calculation results for mean wind speed @ 80 meters above ground: 8.9 meters per second. A preliminary production analysis was run assuming a GE 1.5sle, 77 meter rotor diameter at 80 meter hub height. A resulting capacity factor estimate was determined to be 46.5% and an energy production estimate of 6,108.5 MWh total resulting energy (annual).

The comprehensive wind data report for the Mission site is provided in the Resources file.

2.5. Technology Selection

Letters of Commitment of Turbine Availability, as well as detailed turbine layouts and output analysis for each turbine, are attached in the Design and Engineering File. However, a final wind turbine vendor has not yet been selected for the project.

2.6. Power Market Assessment

Wind power projects in the region have been financed with long-term power contracts in the \$30-\$40/MWh range. These projects were financially viable due to high capacity factors and historically lower turbine prices. Given the increase in turbine and construction prices in the past few years, wind power contracts are increasing in terms of \$/MW.

Utilities are procuring more wind power due to the mandated increased renewable portfolio standards, and wind projects are now competing with one another, rather than against coal or traditional generation, for new power contracts. As the South Dakota power markets begin to open, either by generation purchase commitments by the incumbent utilities and transmission entities in the region or by the transmission entities joining MISO, and as new transmission projects move forward, power prices and transmission costs will become more competitive for wind.

The Rosebud Reservation is served by numerous rural electrical cooperatives, who in turn purchase their power from primarily from Basin Electric. Basin has committed to wind output from several projects throughout the upper Great Plains, either on its own or through its own wind development corporation (Prairie Winds) or purchases a small amount of wind from other projects. However, other potential purchasing entities are emerging in the region as well as transmission opportunities which will open up a new offtake markets.

2.7. Available Transmission and Interconnection

The project is assumed to be connected to the WAPA Mission 115 kV Substation. Large Generator Interconnection Procedure (LGIP) applications have been filed with Western for this project (GI-0613) at the Mission substation (LGIP application documentation available by request), but no System Impact Study has been completed for that interconnection request. The Parties performed an initial outlet capacity study for the Project with an injection point at the Mission 115 kV bus which concluded that it is feasible to proceed with the Project, provided it accounts for some thermal limiters and reactive power/voltage control considerations which were found to be within acceptable ranges for the Partners.

In October 2005 ABB Inc. released a report concerning the transmission capabilities of new wind generation in both North and South Dakota titled *Dakota Wind Transmission Study* (DWTS). Part of this study specifically investigate the ability of non-firm capacity to transmit to

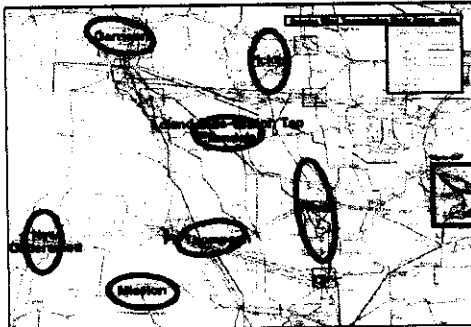


Figure 7-2. Seven Wind Sites Considered in the DWTS.

500 MW of total new wind generation at seven different sites across the Dakotas with three transmission interfaces incorporated to determine power transfer limitations. The seven sites are shown on the adjacent map.

The DWTS is useful for predicting the possible impacts of interconnecting a utility-scale wind project. The likelihood that a significant amount of wind generation has been installed in these regions since the findings of the report were finalized necessitates that a new system impact study be completed with

current load and generating conditions. This type of system impact study would be performed by WAPA during the Interconnection Request process.

2.8. Economic Assessment

Three turbine sites were evaluated in close proximity to the power transmission lines and Substation. A simple calculation was performed to determine the annual energy production based on the wind distribution from a single site, the 50 meter met mast, assuming a GE 1.5 SLE with an 80 m hub height. The gross annual energy production (AEP) estimates in megawatt-hours (MWh)

are shown in the adjacent table, and the wind energy production analyses for each test site are included in the Resources file attachment. Wind resource and estimated energy production analysis were performed for a region near Mission, SD. An existing 50 m met tower, along with the recent installation of two 60 m met towers shows there is high quality on-site wind data available. The existing 50 m data was used to estimate an annual energy production for a single turbine. Not taking into consideration construction costs, it is clear that the proposed wind farm would be economically feasible and should be considered for development.

| WTG Site | Annual Energy Production (MWh) | Gross Capacity Factor | 80m Mean Wind Speed |
|----------|--------------------------------|-----------------------|---------------------|
| 1 | 5,498 | 46.5 | 8.9 m/s |
| 2 | 5,515 | 46.5 | 8.9 m/s |
| 3 | 5,506 | 46.5 | 8.9 m/s |

Given the movement in the capital markets in the last three quarters, the Partners have run several financial models which incorporate several viable financing scenarios and project pro formas. Additionally, the new tax credit and incentive changes may change materially the pro forma inputs for this Project. This is an iterative process which will be updated as market and project conditions change and as new data and analysis is performed during the course of this Project which will provide more accurate and defensible inputs into a final Project pro forma. However, to provide some context for the proposed Project, the initial project capital costs are indicated this summary form.

| | |
|------------------------------|------------|
| WTG Type | GE |
| Turbine Size (MW/Turbine) | 1.5 |
| Number of Turbines | 127 |
| Rated Capacity (MW) | 190.5 |
| Capacity Factor | 46.70% |
| Net Annual Output (MWh) | 888,141 |
| Break-in Period Adjustment | 4 |
| | 95.0% |
| Plant Costs | |
| Turbines | \$ 288,400 |
| Balance of Plant | \$5,278 |
| Material Cost | \$ 301,200 |
| Construction | \$ 4,300 |
| Plant Before Sales Tax | \$ 397,980 |
| Sales Tax | \$ 397,980 |
| Total Plant | \$ 795,960 |
| Non-Plant Costs | |
| Estimated Warranty | \$ - |
| Development Expense | \$ 7,430 |
| Legal/Consulting | \$ 4,763 |
| Insurance | \$ 2,180 |
| Financing Fees | \$ 8,529 |
| Reserves | \$ 500 |
| Interest During Construction | \$ 6,200 |
| Working Capital | \$ 400 |
| Total Non-Plant | \$ 27,462 |
| Acquisition Cost | \$ - |
| Capital Gain/Developer Fee | \$ - |
| Total Capital Cost | \$ 823,422 |

2.9. Financing Plan

Once the project is determined to be ready for construction, Citizens Wind will be responsible for raising the necessary debt and equity capital required for the financing of the construction cost. Citizens Energy has been in the energy development business for more than thirty years, and in that time has raised hundreds of millions of dollars in debt and equity in order to finance its projects. In the wind business specifically, it has secured financial commitments for more than \$1 billion. However, there is currently a significant degree of turmoil in the capital markets, and the costs of raising both equity and debt capital have risen dramatically to reflect the uncertainty in financial markets that is unrelated to the quantifiable risks of particular projects. Citizens would plan to wait until there is a return to historical pricing levels prior to securing capital for the RST wind project as this will be the most cost efficient way to raise money for the project.

In addition to traditional project finance, there are new government initiatives to provide funding to infrastructure projects as part of the American Recovery and Reinvestment Act, including an expanded Department of Energy Loan Guarantee Program. Citizens will examine all possible sources of government and other unconventional funding, as well as weigh the options between utilizing the Production Tax Credit, Investment Tax Credit, or ITC-Equivalent US Treasury Grant.

In order to facilitate financing of the Project, the Project Company may issue and sell additional ownership interests. In such case, the ownership interests of the Parties will be subject to dilution on a pro rata basis. Each Party shall have the first option to acquire up to their pro rata share of any additional issuance in order to preserve their long term ownership interest in the Project Company; provided however, such purchase will not be required. Moreover, the purchase right shall not apply to issuances where the Project Company is raising so-called "tax equity" and where the majority of the ownership interests in the Project Company issued with respect thereto will revert or "flip" back to the Parties following an agreed period of time. The Parties agree to work together to develop and propose to investors a structure for the financing for the Project that provides RST the right to acquire a majority ownership interest in the Project for fair market value at or about the twentieth anniversary of the Commercial Operation of the Project. The Parties understand however that such a proposed structure may not be acceptable to investors and the final terms of financing shall be structured as required by investors, subject to agreement of the Parties.

In addition, the Parties agree to work together to seek third party financing for the Project when the Joint Venture or any Joint Venture Entity has capital requirements with respect to the development of any Project which are either most advantageously obtained, or as a practical matter can only be obtained, through arranging outside financing. It is understood that this agreement to cooperate in seeking financing applies to financing that may be necessary for the Joint Venture Parties to achieve or retain their respective equity positions as provided herein.

The members of the Citizens Wind team have significant experience in capital markets and corporate and structured finance, including the Chairman and CEO of Citizens Energy, Joseph P. Kennedy. Citizens maintains an extensive network of strategic financial partners, investment banks and other institutional investors to ensure access to the necessary capital when the time comes for project financing and turbine procurement.

2.10. Barriers or Obstacles

While the wind resource in the region is extremely high, distance from major markets has reduced the potential economic picture for the Tribe in the past due to the addition of wheeling costs to move this power to major markets. The Hydroelectric Power Dams that were installed and (now WAPA) transmission lines built to move this power across the Northern Plains were once fully charged by hydropower. Today, these lines move a *significant* amount of coal-produced power. The Tribe and Partners are working to establish a critical path to pursue expedited, preference access to the transmission system which is also economically feasible to get this power to the best and most competitive marketplace; this is a both an obstacle but also an opportunity, especially given the Project's profile with respect to WAPA's recommendations for pilot tribal wind projects.

2.11. Operation/Maintenance and Training Plans

As a project company participant and partial owner, the RST is gaining hands-on development experience and it is the expectation that additional RST members will be identified in the near-term for wind technician training in nearby states to be ready for installation of this project. A tribal training program and commitment to mentor is a cornerstone of the partnership managing and developing this project.

2.12. Community Support

The Tribe's leadership has in numerous cases voiced its support for wind development and this project, via tribal resolution and through its consistent activities to create a program and Tribal corporate authorizations necessary to facilitate wind development. In the vicinity, although not required by NEPA, the RST conducted an Ethnological Review as part of the Cultural Review within the Environmental Assessment for prior wind projects, to bring forth the oral history of the proposed site area. No fatal flaw issues were uncovered and a site specific investigation will be initiated during this Project.

2.13. Business and Organization Plan

When warranted, joint ventures will be established to further develop potential wind sites. Based on initial economics, the North Antelope Highlands wind project warrants development of such an entity. The project ownership corporation has been formed by the RST and its development partner, Citizens Energy. A separate project corporate holding corporation will be established as well which would be eligible for several types of tax credits and other incentives that will ensure that project power can be competitively priced for potential power purchasers. As described earlier, the operating agreement for the Project LLC has yet to be developed, but terms and expectations have been defined between the parties and those will be reflected in the operating agreement and will specify all roles and responsibilities related to project completion, commissioning and ongoing operations.

3. Environmental Considerations

3.1. Environmental Benefits & Impacts

Environmental Benefits

The 190 MW North Antelope Highlands wind energy project proposed on the Rosebud Sioux Tribe Reservation will produce an estimated 680,141MWh of electricity per year (assuming a 40.76% capacity factor). Approximately 13.6 million MWh will be produced over the life of the project (an estimated 20 years). According to the Department of Energy's (DOE) Energy Information Administration, the average U.S. household uses 938 KWH per month or 11,256

KWH per year. At this rate, the proposed wind energy project on the Rosebud Sioux Tribe Reservation will produce enough clean renewable power for approximately 60,425 houses in the U.S. per year.

The proposed wind energy project will not emit any greenhouse gases during operation. The tables below list the emission rates for conventional fossil fuel electric generation plants and the estimated amount of emissions that will be reduced by the proposed wind energy project.

| Emissions Reduced By Rosebud Wind Project | | | |
|-------------------------------------------|-------------------------------|-----------------|-----------------|
| | Pounds Per Year Per Fuel Type | | |
| Fuel | SO ₂ | NO _x | CO ₂ |
| Coal | 9,113,889 | 5,169,072 | 1,448,700,330 |
| NatGas | 4,761 | 1,224,254 | 700,545,230 |
| Oil | 7,617,579 | 1,428,296 | 1,061,019,960 |

| Emission Rates for Electrical Generation Plants | | | |
|-------------------------------------------------|--------------------------|-----------------|-----------------|
| | Pounds Per Kilowatt-Hour | | |
| Fuel | SO ₂ | NO _x | CO ₂ |
| Coal | 0.0134 | 0.0076 | 2.13 |
| NatGas | 0.000007 | 0.0018 | 1.03 |
| Oil | 0.0112 | 0.0021 | 1.56 |
| Wind | 0 | 0 | 0 |

*Data adopted from American Wind Energy Association (www.awea.org/pubs/factsheets/EmissionKB.PDF)

Environmental Impacts

The project is being sited and designed to minimize the potential for impacts to the environment, taking into account issues ranging from avian to wildlife to visual to archeological. No initial environmental fatal flaws were found through environmental assessments in the vicinity.

A noise impact analysis and visual impact assessment and simulations will be conducted to determine if there are any potential adverse impacts to sensitive receptors within or outside of the project area. There are no schools, churches, or parks within the project area and few residences and therefore no adverse impacts are anticipated from noise. The town of Mission, South Dakota is within 5 miles of the project area. The project is likely to be visible from churches, parks, historical sites or structures however the project is not expected to have an adverse impact on these receptors.

In terms of avian impacts, the proposed project area is not located in a major flyway and does not contain large bodies of water or wetlands. Studies are currently underway. If there were a potential conflict between the project and birds, mitigative measures will be implemented such as relocation of specific turbines out of highly used habitat. There are no forested areas present within the project area or waterways in which bats tend to congregate. This project is not anticipated to have any adverse impacts on bat populations. If any adverse impacts are determined based on the results of the field studies, mitigative measures will be implemented such as relocation of turbines or mitigative operating procedures for the wind plant during peak migration of bats. Bird and bat surveys are underway at the project site. A Draft *Work Plan for Avian and Bat Studies at Proposed Rosebud Wind Farm, Todd County, Mission, South Dakota* is included as an attachment in the Environmental Analyses and Approvals File. This document describes the survey protocols for all the bird and bat studies to be undertaken. The document will remain in "draft" status until the studies are approved by U.S. Fish and Wildlife Service and the Rosebud Sioux Tribe Natural Resources Department.

3.2. Environmental Analyses Conducted

A reconnaissance level survey was conducted in April 2009 at the proposed wind farm site to obtain a site characterization and identify any environmental constraints, which revealed the majority of the project area is short grass prairie and used primarily for grazing. It is located on a large plateau and contains hilly terrain. There are 2 small ponds located within the project area and several small streams; but no nearby residences. There are numerous prairie dog

colonies throughout the project area. Other mammals also observed during the reconnaissance survey include mule deer, pronghorn antelope, coyote, white-tailed jackrabbit, and Richardson's ground squirrel.

Migrating raptor, migratory bird, and Greater Prairie Chicken lek surveys have been conducted at the proposed project site this spring. A total of 4 migratory raptor and migratory bird surveys will be conducted this spring. As of April 27, 2009, two raptor surveys and two migratory bird surveys have been completed. Two Greater Prairie Chicken lek surveys were completed between April 20th and April 25th, when leking activity peaks. One Greater Prairie Chicken lek was discovered and only one male observed.

Bat acoustical monitoring equipment has also been deployed within 2 locations in the project area. The equipment has been attached to 2 meteorological towers; 2 detectors per tower, one 50 feet high on the tower and the other 9 feet high on the tower. The detectors have been set to begin recording bat echolocation calls from an hour before sunset to an hour after sunrise every day. The equipment began recording data on April 8th of this year.

There is a potential for impacts to wetlands, streams and other sensitive habitats from the construction of necessary ancillary facilities such as roads and electrical collection lines to support the wind plant. Wetlands, streams and sensitive habitats will be avoided to the greatest extent practical. Where impacts cannot be avoided, construction techniques and best management practices will be used to minimize the impact or ensure the impact is temporary. For example, the electrical collection lines will be installed underground as much as possible. The trench in which the cable will be installed will be returned to the original contours and allowed to revegetate naturally. Directional drilling may be utilized in highly sensitive areas to avoid ground disturbance. A Storm Water Pollution Prevention Plan (SWPPP) will be devised and implemented prior to construction to avoid erosion and sedimentation during construction.

3.3. Permitting/Approval Needs and Activities

| List of Interested and Involved Agencies | | |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agency | Permit/Approval/Consultation | Status |
| Bureau of Indian Affairs (BIA)- Aberdeen Area Office | National Environmental Policy Act (NEPA) Review; Approval of Project | Meeting scheduled in May to initiate the NEPA process. |
| U.S. Fish and Wildlife Service | Section 7 of the Endangered Species Act – Consultation Required | Meeting scheduled in May to initiate consultation. |
| RST Natural Resources | Consultation Required | Scheduled consultation. |
| U.S. Army Corps of Engineers- Omaha District Environmental Planning Section | Consultation | This office will be contacted during scoping for the EAEIS for the project. |
| U.S. Army Corps of Engineers- Omaha District Regulatory Office | Section 404 Clean Water Act Permit | A Section 404 permit is only required if impacts to streams or wetlands will occur as a result of the construction and operation of the project. Impacts are yet to be determined. |
| SD Public Utilities Commission | Consultation | Ongoing |
| U.S. Environmental Protection Agency | Section 401 Clean Water Act –Water Quality Certification | This will be applied for prior to construction. |
| RST Tribal Utilities Commission | Approval | Ongoing |

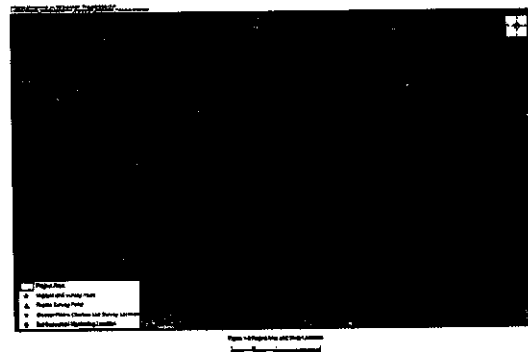
3.4. Permitting/Approval Plan

The plan for obtaining the required environmental permits is to identify sensitive environmental resources as early as possible in the early development and planning phases of the project. A desktop analysis will be conducted to identify the current land use, water resources, and wetlands and streams, and ecological communities within the project area. A preliminary survey will be conducted to verify the information from the desktop study and create maps of the location of areas inappropriate for turbine locations and areas to avoid in locating ancillary facilities. The adjacent map will be reviewed with the project design engineer for use in siting project structures.

Avian and Bat work to satisfy any permitting requirements for the Project will include:

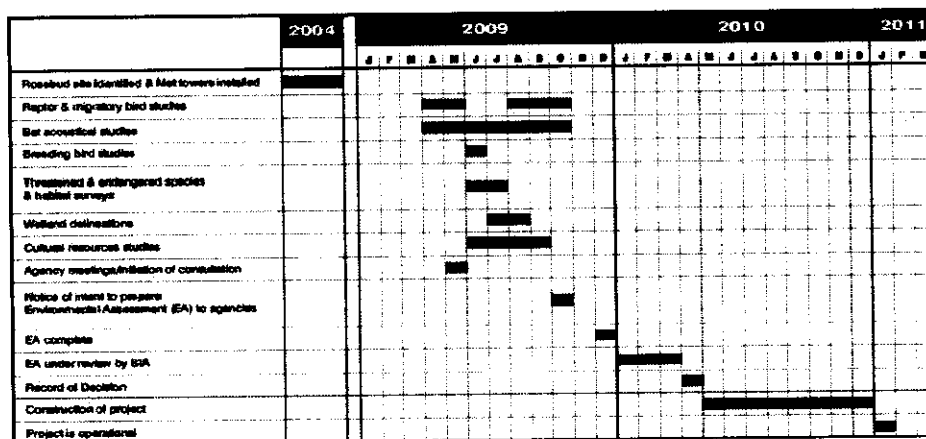
1. Collection of information on occurrences and distribution of avian species during migratory and breeding seasons, which will commence shortly
 - a. Migratory raptor surveys in the spring and fall
 - b. Migratory bird surveys in the spring
 - c. Greater Prairie Chicken surveys in the spring
 - d. Breeding bird surveys in the summer
2. Collection of baseline information on flight directions, passage rates and altitude of nocturnal targets (migratory birds and bats)
3. Collection of information on the occurrence of bat species during migratory seasons, including but not limited to acoustical (Anabat equipment installation)
4. Analysis of baseline data and other studies and data to evaluate potential impacts to birds and bats

Environmental permitting and consulting agencies such as USFWS and Rosebud Sioux Tribe Natural Resources department will be engaged in discussions regarding the project early on during the planning stages. The proposed environmental studies and project layout will be reviewed with the agencies. The final scope of each environmental study will be based on comments received from the agencies. Tribal fish and wildlife expertise as well as consulting biologists will be utilized to work closely with the project team to make sure access roads, collection lines, turbines, and other project structures are sited to minimize impacts to wetlands, waterbodies, and culturally and ecologically sensitive areas. After preliminary layouts have been prepared, the project team will manage a field survey to verify that turbine locations and other facilities are not located in environmentally sensitive areas.



The project layout will continually be refined to avoid and minimize impacts to the greatest extent possible.

A figure depicting the timeline for environmental permitting for the project is included below:



4. Role, Responsibilities, Resources and Capabilities

4.1. Management Concept; roles, business agreements

The Rosebud Sioux Tribe's Natural Resource Department (NRD) and Wind Coordinator, Ken Haukaas, will serve as Project Manager for this DOE Project. The RST NRD, the RST Tribal Utility Commission staff, REDCO staff and advisory, the RST Fish and Wildlife and Environmental, Planning, Historic Preservation and Realty Departments will all work in conjunction to provide Tribal technical expertise and analysis support on this Project.

4.2. Other Project Representatives

Citizens Wind – Citizens Wind has proven experience and expertise in wind power development, including critical aspects such as securing access to wind turbines and development capital. Citizens Wind also has extensive experience working together with tribes to develop wind power potential on tribal lands. Principals include:

Ashley Durmer, Managing Director, Citizens Wind
 Braden Houston, Sr. Wind Developer
 Ben Axelman, Wind Development Associate

Citizens Energy, the non-profit parent company of Citizens Wind, distributed \$1,293,996 to RST between 2008 and 2009 as part of the Citizens Energy/CITGO winter energy assistance program. Profits from business ventures have supported Citizens Energy's charitable programs as innovative as the businesses that financed them. Last winter alone, in partnership with CITGO, Citizens Energy's Oil Heat Program provided more than 50 millions of gallons of low-cost fuel to an estimated 170,000 low-income and elderly households in 16 states, as well as covered the winter heating needs for hundreds of homeless shelters. As part of that initiative, Citizens also delivered more than \$5 million in heating assistance grants to Native American tribes last winter. *Resumes for principals are found in the Resumes File.*

4.3. Management Approach

This DOE project will be managed by the Ken Haukaas. In addition to its tribal council leadership, the RST has several departments and agencies that will be involved, which will include:

- RECDO Staff and Board Advisors
- RST Planning Office
- RST Natural Resources Department
- Shicangu Oyate Land Office
- RST Tribal Historic Preservation Office
- RST Fish & Wildlife Department
- RST Tribal Roads Department
- RST Office of Environmental Protection

4.4. Capabilities

The RST has successfully managed several millions in competitive environmental and other federal, tribal and other grants and continues to do so. The RST has natural resource, utility and environmental offices with specific expertise in the lands and sites contemplated for this Project; Citizens Wind principals have hands-on experience with wind technologies, wind facility maintenance and operations as well as business development expertise that is readily evident in their respective resumes.

4.5. Cost Sharing

Cost share contribution for the project will be provided by Citizens Wind. As indicated in the Commitments file, Citizens will contribute \$1,000,000 in cash, as well as approximately \$500,000 in contributed time, to this effort.

4.6. Description of Land

The site is located on 8,000 acres of RST trust land, approximately 2.5 miles north of Mission, SD, and roughly 15 miles north of St Francis, SD.

4.7. Business Agreements

In entering into a business arrangement with Citizens, RST will own a substantial equity interest in the wind project development company without making any financial contribution, while at the same time receiving significant annual royalties and tax or in-lieu-of tax payments. In consideration of the contributions of time and effort and support, RST has an ownership interest in the Project Company although its partner bears all the risks associated with the development(s). RST also retains an option to retain a long term equity stake in the ownership of the Wind Project, to be reflected by its capital and other contributions, of which this DOE grant would represent a significant contribution.

As a function of shared ownership, RST will be an active leading member of the project's development company, thereby adding value to the effort and gaining management and hands-on experience in all aspects of wind power development. This gradual and material participation in the project from an economic basis as well as active management leadership participation are two important aspects of furthering the RST's energy vision – to expand critical energy infrastructure, to diversify in a sustainable manner its economic footprint, to participate materially in any development occurring on RST lands and to step forward in a deliberative way into increased control of RST's energy facilities and future. As a division of non-profit Citizens Energy Corporation, the RST recognizes that Citizens Wind share the values of community and environmental sustainability that have been practiced by Tribes for thousands of years.

4.8 Project Co-Financing

The RST and its Citizens Wind partners will be identifying financing and financial partners for the debt and equity portions of this project as the project advances. As an experienced developer of wind projects in North America, Citizens Wind has all of the skills and capabilities necessary to manage a wind project from the early stages of project conception, through the development process, and finally to engineering, procurement, construction and operation. What makes this a different sort of partnership is that the RST has a partner which has experience developing wind projects with Native communities and is committed to offering financial support in terms of both match as well as financial investments ongoing which can be more effectively leveraged once these important pre-development activities are completed.

5.0 Project Activities and Timeline

5.1 Overview of Project Goals

Goals of this effort to develop the 190 MW North Antelope Highlands Wind Project are to:

1. Continue to collect and analyze wind data
2. Complete required interconnection studies and engineering work for project interconnection and transmission service;
3. Finalize lease and project agreements in and between the Project Parties;
4. Complete final engineering design;
5. Permitting and approvals work, including, avian and bat studies, wildlife surveys and reports, archeological, visual simulations, noise, FAA and any other NEPA related permits and approvals due to tribal and/or allottee lease and/or WAPA interconnection activities
6. Build and maintain community support for wind development
7. Negotiate and secure a Power Purchase Agreement
8. Secure financing
9. Secure turbines
10. Negotiate and select Balance of Plant electrical and civil construction firms and contractors

The objectives of the project are to develop a self-sustainable business on the reservation to foster jobs primarily and to create maximum economic development benefits to the RST and its members without the Tribe assuming any economic risk. Building internal capacity is also an important ingredient in this project, as it has provided a greater understanding of the potential of wind resource here on the reservation.

5.2 Summary of Approach for Implementation

Critical pre-development tasks for implementation of this Project will include the tasks described below, complete in parallel, to the extent possible, in order to move the RST project forward as quickly as possible.

5.3 Description of Tasks

- Preliminary Project Assessments – underway; partially completed
- Installation of Meteorological Towers – partially completed; installations may need to be repositioned
- Community Outreach
 - Community Education and Outreach Meetings – Quarterly

- **Project Permitting Activities**
 - Initial Avian and Bat Surveys. Initiation of an initial avian and bat review which would include: identify any areas or resources of specific concern; identify existing known species; based on Tribal, USFWS and Interior requirements, initiate bird survey work which may include reconnaissance and seasonal surveys, habitat surveys for sensitive/listed species and possibly radar or acoustical monitoring of migratory birds to estimate of flight heights; bat study methods may used include mist netting, radar, thermal and/or light amplification imagine as well as acoustical monitoring. The following will be included as a matter of course: weather monitoring; habitat surveys; raptor migration survey; breeding and migrating bird survey; and bat acoustical monitoring.
 - Avian and Bat Pre Construction possible next level work: radar studies; raptor migration surveys; waterfowl surveys; breeding bird surveys; wintering bird surveys; and any necessary expanded studies for migratory bats. (see study scope of work attached in the Environmental Analyses and Approvals File)
 - Site/Land Control Documentation and Work. Updating and specifying land status descriptions for the project area; working with the relevant local and regional BIA/Interior office to identify and begin scoping action plan to begin lease and land identification work;
 -
- **Wind Assessment**
 - Continued analysis of wind and complimentary wind turbine and array design analysis will be ongoing and updated as specific siting work is completed and site design matures
 -
- **Initial Site Layout**
 - Preliminary site layout design has been modeled; but as siting work (including site control; land surveying and environmental work is undertaken) begins, site layout will reflect any constraints or new siting opportunities that emerge
 - Initial Project Engineering Work. In order to better define the project and the major cost drivers, undertake the following: Wind turbine micrositing (field verification that each site is constructable and located optimally in relation to local homes, terrain, vegetation, obstructions, and land use; Conceptual design of the access roads and collection system; Conceptual design of the substation; Initial geotechnical investigation of the soil conditions on-site.
 - The cost for these services depends greatly on the scope of the project being considered. For a large project, this cost could be \$100,000 or more. The benefit is that this work directly supports the engineering work that will be required to build the project, and is therefore not wasted effort if the project is built.
 -
- **Environmental Reviews.** The team will also undertake and study the following environmental categories as well as any other deemed applicable at the time of study:
 - Critical Habitat Survey: A review the terrain and foliage
 - Affect on National Parks or National Historic Sites
 - Affect on National Parks or Protected Areas
 - Identification of Areas of Critical Environmental Concern
 - Soil Resources – Geotechnical Study
 - Water and Air Resources Survey and Report: for air and water permits
 - Wildlife Survey: for ESA clearances or permits; and any other wildlife affects and mitigation strategy identification

- Cultural, Historical and Ethnographic Resources Study: for NHPA clearances and permits
- Socioeconomic Conditions and Impacts: for fulfillment of NEPA CE, EA or EIS review requirements
- Noise and Light Impacts: for fulfillment of NEPA CE, EA or EIS review requirements
- Visual Impacts: for fulfillment of NEPA CE, EA or EIS review requirements
- Any Other Identified Potential Affects on Public Health and Safety
- Interconnection/Transmission
 - Preliminary Interconnection Options Study to identify capacity options for interconnection and any transmission service requirements; undertake a preliminary power flow analysis to identify best case economic interconnection scenarios, reviewing thermal transmission limits based on incremental injections on line loadings as well as nodal transmission volages pre- and post-injection; identification and cost estimations for any upgrading, expansion or new facility construction requirements for the Project; illustrative single-line interconnection diagrams based on injection point(s) identified
 - Initiation of a Stability and System Impact Studies
 -
- Design of Final Layout, including: array design; collector system design; substation and associated facilities final design and layouts
- Pre-Construction Studies
 - Detailed, Updated Construction Cost Estimates. Initial cost estimates provided are based on the number of turbines, general arrangement, and cost indices of the then current wind energy market. Much has changed in the last six months. An updated project estimate based on the specifics of the project would now include: estimated quantities of materials, quotes from local contractors, and commitments for cranes and other specialized equipment.
 - As preparation of such an estimate is costly but needs to be done as the final turbine placement design work is performed and Partners are negotiating a power purchase agreement with a utility. Performing the activity too early could lead to re-work being required if the project size and design changes. Not preparing such an estimate before final utility negotiations could lead RST to based negotiations on too low an estimate.

5.4 Schedule of milestones

